



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
[www.uspto.gov](http://www.uspto.gov)

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/721,531	11/25/2003	George H. Hofmann	AD6935 USNA	5344
23906	7590	09/09/2005	EXAMINER	
E I DU PONT DE NEMOURS AND COMPANY LEGAL PATENT RECORDS CENTER BARLEY MILL PLAZA 25/1128 4417 LANCASTER PIKE WILMINGTON, DE 19805			ASINOVSKY, OLGA	
			ART UNIT	PAPER NUMBER
			1711	
DATE MAILED: 09/09/2005				

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b>	<b>Applicant(s)</b>	
	10/721,531	HOFMANN, GEORGE H.	
	<b>Examiner</b>	<b>Art Unit</b>	
	Olga Asinovsky	1711	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) Responsive to communication(s) filed on 25 November 2003.
- 2a) This action is FINAL.                    2b) This action is non-final.
- 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) Claim(s) 1-18 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) Claim(s) \_\_\_\_\_ is/are allowed.
- 6) Claim(s) 1-18 is/are rejected.
- 7) Claim(s) \_\_\_\_\_ is/are objected to.
- 8) Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) The specification is objected to by the Examiner.
- 10) The drawing(s) filed on \_\_\_\_\_ is/are: a) accepted or b) objected to by the Examiner.  
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) All    b) Some \* c) None of:
  1. Certified copies of the priority documents have been received.
  2. Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- 1) Notice of References Cited (PTO-892)
- 2) Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
 Paper No(s)/Mail Date 04/19/2004.
- 4) Interview Summary (PTO-413)  
 Paper No(s)/Mail Date. \_\_\_\_\_
- 5) Notice of Informal Patent Application (PTO-152)
- 6) Other: \_\_\_\_\_

**DETAILED ACTION*****Claim Rejections - 35 USC § 112***

1. Claims 1-18 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

In claim 1, there is no definition for "X" in a PVBX. Is "X" a crosslinking agent?

In claim 5, there is no definition for a modified PVB. There is no definition for a modified PVB in claim 1. The crosslinking reaction between modified PVB and crosslinking agents is not clear in claim 5. Therefore, a composition in claim 5 is indefinite.

In a process in claim 12, there is no definition for "X" in a PVBX. There is no step of making a modified non-blocking PVB. A crosslinking reaction in a process claim 12 is indefinite.

A catalyst in claim 14 is not clear. A process in claim 14 is indefinite.

In claim 15, there is no definition for "X" in a PVBX. A process in claim 15 is indefinite.

In claim 16, there is no definition of "X" in a PVBX. There is no definition for a crosslinking agent and a catalyst. A crosslinking reaction is indefinite in a process in claim 16.

***Claim Rejections - 35 USC § 102***

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the

applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

3. Claims 1-5, 9-12, 15 and 17-18 are rejected under 35 U.S.C. 102(e) as being anticipated by Lenox et al U.S. patent 6,921,791.

Lenox discloses a thermoplastic elastomer composition comprising the combination of a dynamically vulcanized blend of epoxidized natural rubber (ENR), ionomers such as copolymer of ethylene/acrylic acid and a diluent polymer such as polyvinyl butyral, column 2, line 15 and 50-59. The epoxidized natural rubber is readable for being a thermoplastic polymer in the present claims 1, 12, 15 and 16. The ionomer copolymer such as ethylene/acrylic acid is readable for being a crosslinking agent in the present claims. The diluent polymer can be selected such as polyvinyl butyral for the present claims. The resulting product is a thermoplastic elastomer that can be extruded, column 3, lines 49-63. In a method for making said thermoplastic elastomer the ingredients were blended under temperature above 250 F to cause the reaction of the polymeric components. The diluent polymer such as polyvinyl butyral can be present in the amount between about 5% to about 80% by weight of the thermoplastic. Reference discloses a dynamically vulcanized blend, column 1, line 56. Thus, a crosslinking reaction is readable in Lenox invention.

***Claim Rejections - 35 USC § 103***

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 1-18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hofmann U.S. Patent 6,506,835.

Hofmann discloses a polymer blend comprising polyvinyl butyral, polyvinyl chloride and an ethylene-based copolymer as a compatibilizer, column 2, lines 10-67. An ethylene-based compatibilizer having carboxyl functional group is readable in applicant's claims for being a crosslinking agent for polyvinyl butyral . Polyvinyl butyral is present in the range of 5 to 95wt.%, column 1, line 49. the composition is produced by mixing the ingredients under melting temperature, column 5, lines 13-26.

The difference between the present claims and Hofmann is the requirement in the present claims that a PVB is crosslinked under chemical reaction.

It would have been obvious to one of ordinary skill in the art to consider that a chemical reaction is occurred between the ethylene-based compatibilizer having carboxyl functional group and the hydroxyl group of PVB since it is unavoidable chemical reaction between carboxyl group and hydroxyl group. Also, making a film or molded article is the evidence that the resulting PVB is a crosslinked modified non-blocking PVB.

Art Unit: 1711

6. Claims 6-8, 13-14 and 16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lenox et al U.s. patent 6,921,791 as applied to claim1-5, 9-12, 15 and 17-18 above, and further in view of Hofmann U.s. patent 6,506,835.
7. Lenox does not disclose a thermoplastic polymer readable in the present claim 6.
8. It would have been obvious to one of ordinary skill in the art to modify the thermoplastic elastomer in Lenox invention by employing a polyvinylchloride as disclosed by Hofmann because any additional polymer would be expected for making the product having desired physical properties.

***Conclusion***

9. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. References have been considered.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Olga Asinovsky whose telephone number is 571-272-1066. The examiner can normally be reached on 9:00 to 5:30 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, James Seidleck can be reached on 571-272-1078. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Art Unit: 1711

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

O.A  
Olga Asinovsky  
Examiner  
Art Unit 1711

September 02, 2005

  
James J. Seidleck  
Supervisory Patent Examiner  
Technology Center 1700